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10/521,872	01/21/2005	Gerhard D. Klassen	555255012438	1246

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EXAMINER	
PATEL, HETUL B	
ART UNIT	**PAPER NUMBER**
2186	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/521,872	KLASSEN ET AL.	
	Examiner	Art Unit	
	Hetul Patel	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/21/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-35 are presented for examination.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 01/21/2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner.

Claim Objections

3. Claims 2 and 30 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Since the independent claim 1 already contains the limitation of "... accessing at least two data storage locations and deleting data from at least one of the accessed data storage locations", the dependent claim 2 does not further limit it by simply reciting "...accesses at least the one data storage location and at least one other data storage location and deletes data from at least one of the accessed data storage locations".

Similarly, claim 30 does not further limit by simply reciting "...the deletion criteria includes a control level" since it is part of the parent claim 28.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation "at least the one data storage location" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-9, 12-27 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flanagin et al. (USPN: 7,017,105) hereinafter, Flanagin in view of Beresin et al. (USPN: 2004/0158829) hereinafter, Beresin.

As per claim 1, Flanagin teaches a system for managing memory space (i.e. the limited memory space of the wireless devices) in a mobile device (i.e. wireless mobile and other portable devices, such as PDAs and cellular phones), comprising:

- a plurality of data storage locations (i.e. locations within the limited memory space of the wireless devices);

- a plurality of software applications (i.e. software applications such as, an address book for keeping contact information such as names and addresses, a calendar for keeping schedules and important dates, an e-mail application for to send and receive electronic messages, an internet application for accesses web-pages, and other services), each software application being operable to store data to a different data storage location (this limitation is *inherent* because each application has to be stored at a different storage location in order for it to be separately/individually executed/addressed) (e.g. see Col. 1, lines 16-24); and
- a data store management system (i.e. the data synchronizing system) operable to access and delete data stored in the plurality of data storage locations in accordance with one or more pre-selected control levels (i.e. by using the filters, data stored in the plurality of storage locations identified as stale/old data and deleted) (e.g. see Col. 1, line 65 - Col. 2, line 4).

However, Flanagin does not specifically disclose about if insufficient memory space is available in one of the data storage locations, then the data store management system accesses at least two of the data storage locations and deletes data from at least one of the accessed data storage locations. Beresin, on the other hand, teaches that when the synchronization management agent (i.e. 112 in Fig. 1) determines that the local memory (i.e. 114 in Fig. 1) of the mobile terminal (i.e. 100 in Fig. 1) does not include enough free memory for storing the requested file, the synchronization management agent then determines which file(s) stored in the local memory of mobile

terminal can be deleted in order to free memory for the requested file. The synchronization management agent selects file(s) that have been used least frequently (LFU) by the user of mobile terminal and deletes it to free enough space in the memory (e.g. see paragraph [0026]). In order to determine the LFU file(s), the synchronization management agent has to access *all* (i.e. which includes at least two as claimed) of the data storage locations and then delete data from at least one of the accessed data storage locations (i.e. the LFU file(s)) as claimed in the current application. Accordingly, it would have been obvious to one of ordinary skills in the art at the time of the current invention was made to implement the teachings of Beresin in the system taught by Flanagin so, when the local memory is full, instead of randomly selecting, the data location(s) is/are wisely selected for eviction, i.e. the least-frequently-used data location(s). Therefore, the data location(s) that most likely to be needed again (i.e. the data location(s) other than the least-frequently-used data location(s)) are avoided from deletion.

As per claim 2, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Beresin teaches that the synchronization management agent selects file(s) that have been used least frequently (LFU) by the user of mobile terminal and deletes it to free enough space in the memory (e.g. see paragraph [0026]). In order to determine the LFU file(s), the synchronization management agent has to access *all* (i.e. which includes at least two as claimed) of the data storage locations and then delete data from at least one of the accessed data storage locations (i.e. the LFU file(s)) as claimed.

As per claim 3, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Beresin teaches that the synchronization management agent selects file(s) that have been used least frequently (LFU) by the user of mobile terminal and deletes it to free enough space in the memory (e.g. see paragraph [0026]). In order to determine the LFU file(s), the synchronization management agent has to sequentially access *all* (i.e. each of data storage locations as claimed) of the data storage locations and then delete data from at least one of the accessed data storage locations in accordance with one or more pre-selected memory retention configurations (i.e. selecting the LFU file(s)) as claimed.

As per claim 4, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Flanagin teaches that a memory retention configuration is pre-selected for each of the plurality of data storage locations, for example, delete the calendar information once they become stale after their corresponding dates have past, delete the contact information once it changed and/or outdated (see Col. 1, lines 54-64).

As per claim 5, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Flanagin teaches that the data store management system deletes expired data (i.e. the calendar information after their corresponding dates have past) from at least one of the accessed data storage locations (e.g. see Col. 1, lines 54-55; Col. 1, line 65 - Col. 2, line 4).

As per claim 6, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Flanagin teaches that the expired data includes calendar data for a past time or date (e.g. see Col. 1, lines 54-55).

As per claim 7, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Beresin teaches that the data store management system applies a memory retention algorithm (i.e. the LFU algorithm) to delete data from at least one of the accessed data storage locations (e.g. see paragraph [0026]).

As per claims 8 and 9, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Beresin teaches that the data store management system applies a least-frequently-used (LFU) memory retention algorithm to delete data from at least one of the accessed data storage locations (e.g. see paragraph [0026]). Many different types of memory retention/replacement/retirement algorithms, such as least recently used/accessed (LRU), most recently used/accessed (MRU), least frequently/commonly used/accessed (LFU), most frequently/commonly used/accessed (MFU), first-in first-out (FIFO), last-in first-out (LIFO), round robin etc., are well-known and notorious old in the art. The memory retention/replacement/retirement algorithm is a system dependent feature. Since neither applicant nor specification disclose that changing the type of the memory retention algorithm would change the system functionality or performance, therefore, any type of memory retention algorithms can be used for determining at least one of the

accessed data storage locations for deletion. The Examiner herein taking Official Notice on this subject matter.

As per claim 12, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Beresin teaches that the pre-selected control levels identify one or more minimum file size of the data deleted by the data store management system (i.e. identifies minimum memory space required to store the requested file in the local memory) (e.g. see paragraph [0026]).

As per claim 13, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Beresin teaches that the data store management system deletes data from at least one of the accessed data storage locations in accordance with one or more pre-selected memory retention configurations (i.e. based on LFU data) (e.g. see paragraph [0026]).

As per claim 13, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Flanagin teaches that the data store management system deletes data from at least one of the accessed data storage locations in accordance with one or more pre-selected memory retention configurations (i.e. using the filters to exclude the data such as calendar information after the corresponding dates have passed, contact information that have changed/outdated) (e.g. see Col. 1, line 50 – Col. 2, line 4).

As per claim 14, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Flanagin teaches that the pre-selected memory retention configurations include a configuration that instructs the data store

management system not to delete data from a particular data storage location (i.e. not deleting appointment data from the server) (e.g. see Col. 1, lines 56-60).

As per claim 15, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Flanagin teaches that the pre-selected memory retention configurations include a configuration that instructs the data store management system to only delete expired data from a particular data storage location (i.e. using the filters to delete the expired data such as calendar information after the corresponding dates have passed, and contact information that have changed/outdated) (e.g. see Col. 1, line 50 – Col. 2, line 4).

. As per claim 16, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Beresin teaches that the pre-selected memory retention configurations include a configuration that instructs the data store management system to delete data from a particular data storage location in accordance with a pre-selected control level (i.e. deleting the LFU data) (e.g. see paragraph [0026]).

As per claim 17, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Beresin teaches that the pre-selected memory retention configurations include a configuration that instructs the data store management system to delete expired data (i.e. the data which are LFU) from a particular data storage location (i.e. from the local memory location on the mobile terminal) (e.g. see paragraph [0026]). Beresin further teaches that data is deleted from

the particular data storage location in accordance with a pre-selected control level (i.e. using the LFU algorithm) (e.g. see paragraph [0026]).

As per claims 18-26, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Flanagin teaches that wireless devices are used to manage data objects such as emails, contact information, calendar information, web pages, and the like (e.g. see Col. 3, lines 64-66). In other words, the plurality of data storage locations of wireless devices include a browser cache (for storing/caching web pages), a message store (for storing e-mails), an address book (for storing contact information), a browser bookmarks store (for storing useful web links/addresses), a calendar data store (for storing calendar information), an electronic messaging system (for storing e-mails), an Internet browser application (for accessing web pages), a calendar application (for accessing/using calendar information) and similarly a notes store for storing notes.

As per claim 27, the combination of Flanagin and Beresin teaches the claimed invention as described above and furthermore, Beresin teaches that data store management system deletes data from at least one of the accessed data storage locations to free a minimum amount of memory (i.e. enough free memory for storing the requested file) (e.g. see paragraph [0026]).

As per claim 35, Flanagin teaches a mobile device (i.e. wireless mobile and other portable devices, such as PDAs and cellular phones), comprising:

- a plurality of data storage locations (i.e. locations within the limited memory space of the wireless devices); and

- a plurality of software applications (i.e. software applications such as, an address book for keeping contact information such as names and addresses, a calendar for keeping schedules and important dates, an e-mail application for to send and receive electronic messages, an internet application for accesses web-pages, and other services), each software application being operable to store data to a different data storage location (this limitation is *inherent* because each application has to be stored at a different storage location in order for it to be separately/individually executed/addressed) (e.g. see Col. 1, lines 16-24).
- means for determining if insufficient memory space is available in one of the data storage locations; and
- means for accessing at least two of the data storage locations and deleting data from at least one of the accessed data storage locations if insufficient memory space is available in the one data storage location in accordance with one or more pre-selected control levels.

However, Flanagin does not specifically disclose about means for determining if insufficient memory space is available in one of the data storage locations and means for accessing at least two of the data storage locations and deleting data from at least one of the accessed data storage locations if insufficient memory space is available in the one data storage location in accordance with one or more pre-selected control levels. Beresin, on the other hand, teaches that when the synchronization management agent (i.e. 112 in Fig. 1) determines that the local memory (i.e. 114 in Fig. 1) of the

mobile terminal (i.e. 100 in Fig. 1) does not include enough free memory for storing the requested file, the synchronization management agent then determines, in accordance with one or more pre-selected control levels (i.e. using LFU algorithm), which file(s) stored in the local memory of mobile terminal can be deleted in order to free memory for the requested file. The synchronization management agent selects file(s) that have been used least frequently (LFU) by the user of mobile terminal and deletes it to free enough space in the memory (e.g. see paragraph [0026]). In order to determine the LFU file(s), the synchronization management agent has to access *all* (i.e. which includes at least two as claimed) of the data storage locations and then delete data from at least one of the accessed data storage locations (i.e. the LFU file(s)) as claimed in the current application. Accordingly, it would have been obvious to one of ordinary skills in the art at the time of the current invention was made to implement the teachings of Beresin in the mobile device taught by Flanagin so, when the local memory is full, instead of randomly selecting, the data location(s) is/are wisely selected for eviction, i.e. the least-frequently-used data location(s). Therefore, the data location(s) that most likely to be needed again (i.e. the data location(s) other than the least-frequently-used data location(s)) are avoided from deletion.

6. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flanagin in view of Beresin, further in view of "Automatic Removal of Old Calendar Information from the PC", IBM Technical Disclosure Bulletin, November 1992, US, Vol. 35, issue 6, pgs. 412-413, hereinafter, IBM.

As per claim 10, the combination of Flanagin and Beresin teaches the claimed invention as described above, but both failed to clearly disclose that the pre-selected control levels are configured by a device user. IBM, however, discloses that it is up to the user to decide the retention period for data to be stored on the local storage space so (i) No storage is wasted on data that is older than the user cares about; and (ii) It allows the user to decide how much old data is needed (e.g. see paragraphs 6-8 on page 1). Accordingly, it would have been obvious to one of ordinary skills in the art at the time of the current invention was made to implement the teaching of IBM in the system taught by the combination of Flanagin and Beresin for the benefits recited above.

As per claim 11, the combination of Flanagin and Beresin teaches the claimed invention as described above, but both failed to clearly disclose that the pre-selected control levels identify one or more time periods during which the data store management system will not delete data from the accessed data storage locations. IBM, however, discloses that it is up to the user to decide the retention period for data to be stored on the local storage space (i.e. the time period during which the system will not delete the data) so It allows the user to decide how much old data is needed (e.g. see paragraphs 6-8 on page 1). Accordingly, it would have been obvious to one of ordinary skills in the art at the time of the current invention was made to implement the teaching of IBM in the system taught by the combination of Flanagin and Beresin for the benefit recited above.

7. Claims 28-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beresin.

As per claim 28 and 30, Beresin teaches a method for managing memory space in a mobile device (i.e. the mobile terminal 100 in Fig. 1), comprising:

- determining that additional memory space is needed to store application data (i.e. the requested data) in one of a plurality of data storage locations (i.e. locations of memory 114 where Application 1-3 are stored in Fig. 1), wherein each of the data storage locations stores a different category of application data (i.e. different applications) (see Fig. 1);
- accessing each of the plurality of data storage locations to identify stored data that satisfies one or more deletion criteria, the one or more deletion criteria including a control level (i.e. identifying file(s) that have been used least frequently (LFU) by the user of mobile terminal; each of the plurality of data storage locations has to be accessed in order to identify LFU file(s)); deleting the identified stored data from at least one of the data storage locations; and storing the application data in the one data storage location (e.g. see paragraph [0026]).

Beresin does not specify about *sequentially* accessing each of the plurality of data storage locations to identify stored data that satisfies one or more deletion criteria. However, at the time of the current invention was made, it was well known and notorious old in the art that accessing data in sequential order compare to out of sequence is much faster. Therefore, it would have been obvious to one of ordinary

skills in the art at the time of the current invention was made to *sequentially* access each of the plurality of data storage locations, in Beresin's method, to identify stored data that satisfies one or more deletion criteria so it can complete faster than non-sequential order. The Examiner herein taking Official Notice on this subject matter.

As per claim 29, Beresin teaches the claimed invention as described above and furthermore, Beresin teaches that the deletion criteria includes a memory retention configuration (i.e. delete data in the local memory 114 that are least-frequently-used (LFU) and retain data that are not LFU) (e.g. see paragraph [0026]).

As per claim 31, Beresin teaches the claimed invention as described above and furthermore, Beresin teaches that the deletion criteria includes a memory retention algorithm (i.e. LFU algorithm) (e.g. see paragraph [0026]).

As per claims 32-33, Beresin teaches the claimed invention as described above and furthermore, Beresin teaches that the data store management system applies a least-frequently-used (LFU) memory retention algorithm to delete data from at least one of the accessed data storage locations (e.g. see paragraph [0026]). Many different types of memory retention/replacement/retirement algorithms, such as least recently used/accessed (LRU), most recently used/accessed (MRU), least frequently/commonly used/accessed (LFU), most frequently/commonly used/accessed (MFU), first-in first-out (FIFO), last-in first-out (LIFO), round robin etc., are well-known and notorious old in the art. The memory retention/replacement/retirement algorithm is a system dependent feature. Since neither applicant nor specification disclose that changing the type of the memory retention algorithm would change the system functionality or performance,

therefore, any type of memory retention algorithms can be used for determining at least one of the accessed data storage locations for deletion. The Examiner herein taking Official Notice on this subject matter.

As per claim 34, Beresin teaches the claimed invention as described above and furthermore, Beresin teaches that the method further comprising: determining if a minimum amount of memory is available in the plurality of data storage locations; if the minimum amount of memory is not available in the plurality of data storage locations, then sequentially accessing each of the plurality of data storage locations to identify and delete stored data that satisfies one or more additional deletion criteria (i.e. selecting file(s) for deleting that together with existing unoccupied memory space constitute a continuous block of memory, in order to decrease fragmentation of memory) (e.g. see paragraph [0026]).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hetul Patel whose telephone number is 571-272-4184. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

H.B. Patel 03/19/2007
Hetul Patel
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Art Unit 2186